

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A legged mobile robot comprising:  
at least a plurality of movable legs; actuator devices for driving the movable legs;  
a higher-order control system for controlling the robot;  
sensors including at least one of a position sensor, an ~~acceleration~~ acceleration sensor,  
an angular velocity sensor, ~~which are~~ and a torque sensor, said sensors housed in every joint-  
actuator device for detecting driving situations of the actuator device; and  
a sensor disposed outside the actuator device for detecting contact and collision with  
surroundings,  
wherein the actuator device comprises an input interface for receiving a sensor signal  
from at least the one sensor disposed outside the actuator device; a signal processing unit for  
removing noise from sensor signals received from the ~~housed~~ sensors housed in every joint-  
actuator device and the ~~outside~~ sensor disposed outside the actuator device; and an arithmetic  
processing unit for drive-controlling an actuator motor and for processing sensor-information  
according to a command from the higher-order control system.

Claim 2 (Currently Amended): A robot according to claim 1, wherein an output from  
[[the]] a contact sensor disposed at an arbitrary position on the robot is entered to a nearest  
actuator device in that a wiring route is [[the]] shortest, and in the actuator device, [[the]] an  
output of the ~~outside~~ sensor disposed outside the actuator device is processed to remove noise  
and sensor information is computed.

Claim 3 (Original): A robot according to claim 1, further comprising a bus provided  
on the robot for interconnecting the higher-order control system and the actuator devices,

wherein via the bus, the actuator device transmits actuator drive-control signals to and from the higher-order control system and also transmits sensor information from the sensors housed in the actuator device and the sensor disposed outside the actuator device.

Claim 4 (Currently Amended): A robot according to claim 1, further comprising a hub device provided at every movable unit for concentrating transmission signal lines.

Claim 5 (Currently Amended): A robot according to claim 1, wherein the arithmetic processing unit determines that interference is generated when [[the]] torque generated in the actuator device disposed in [[the]] a vicinity of [[the]] a region with [[the]] detected contact information is increased clearly larger above normal while [[the]] a contact sensor having reference to pinching a foreign substance is turned on within a predetermined period of time.

Claim 6 (Currently Amended): A robot according to claim 1, wherein the arithmetic processing unit determines that a foreign substance is pinched between a joint and a link when [[the]] torque generated in the actuator device disposed in [[the]] a vicinity of [[the]] a region with [[the]] a detected contact information is increased clearly larger above normal while [[the]] a contact sensor having reference to pinching a foreign substance is not turned on within a predetermined period of time, or when the torque generated in the actuator device disposed in the vicinity of the region with the detected contact information is not increased larger above normal while the contact sensor having reference to pinching a foreign substance is turned on within a predetermined period of time.

Claim 7 (Original): An actuator device applicable to a joint shaft of a legged mobile robot comprising: an actuator motor; a sensor housed in the device for detecting actuator

driving situations; an input interface for receiving sensor signals from at least one outside sensor disposed outside the device; a signal processing unit for removing noise from sensor signals from the sensor housed in the device and from the outside sensor; a bus interface for transmitting actuator drive-control signals to and from a higher-order control system and also for transmitting sensor information from the sensor housed in the actuator device and the sensor disposed outside the actuator device via a bus; and an arithmetic processing unit for drive-controlling the actuator motor and for processing sensor information according to a command from the higher-order control system.

Claim 8 (Currently Amended): A device according to claim 7, wherein the sensor housed in the device comprises at least one of a position sensor, an ~~acceleration~~ acceleration sensor, an angular velocity sensor, a torque sensor, and a temperature sensor.

Claim 9 (Original): A device according to claim 7, wherein the outside sensor is one of a contact sensor and a pressure-sensitive sensor for detecting contact and collision with surroundings.

Claim 10 (Currently Amended): A device according to claim 7, wherein sensor signals are received from ~~[[the]]~~ a nearest outside sensor via the input interface so as to reduce a wiring route length to ~~[[the]]~~ a shortest.